COMPUTER NEWS

10003

GENERAL NEWS

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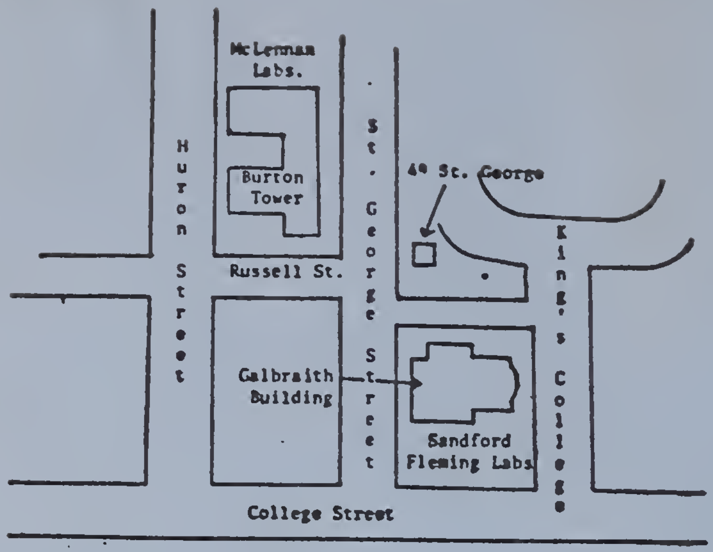
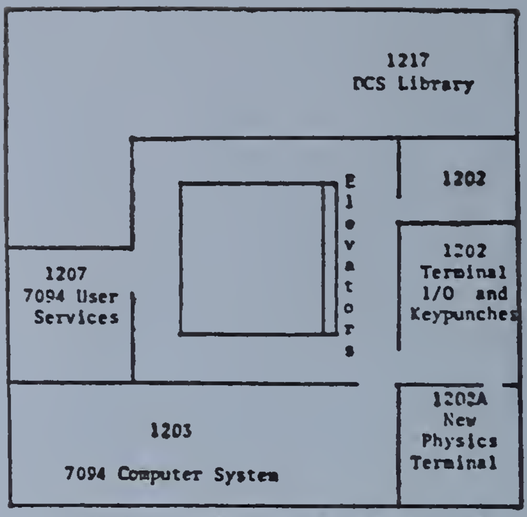
University of Toronto

January 74

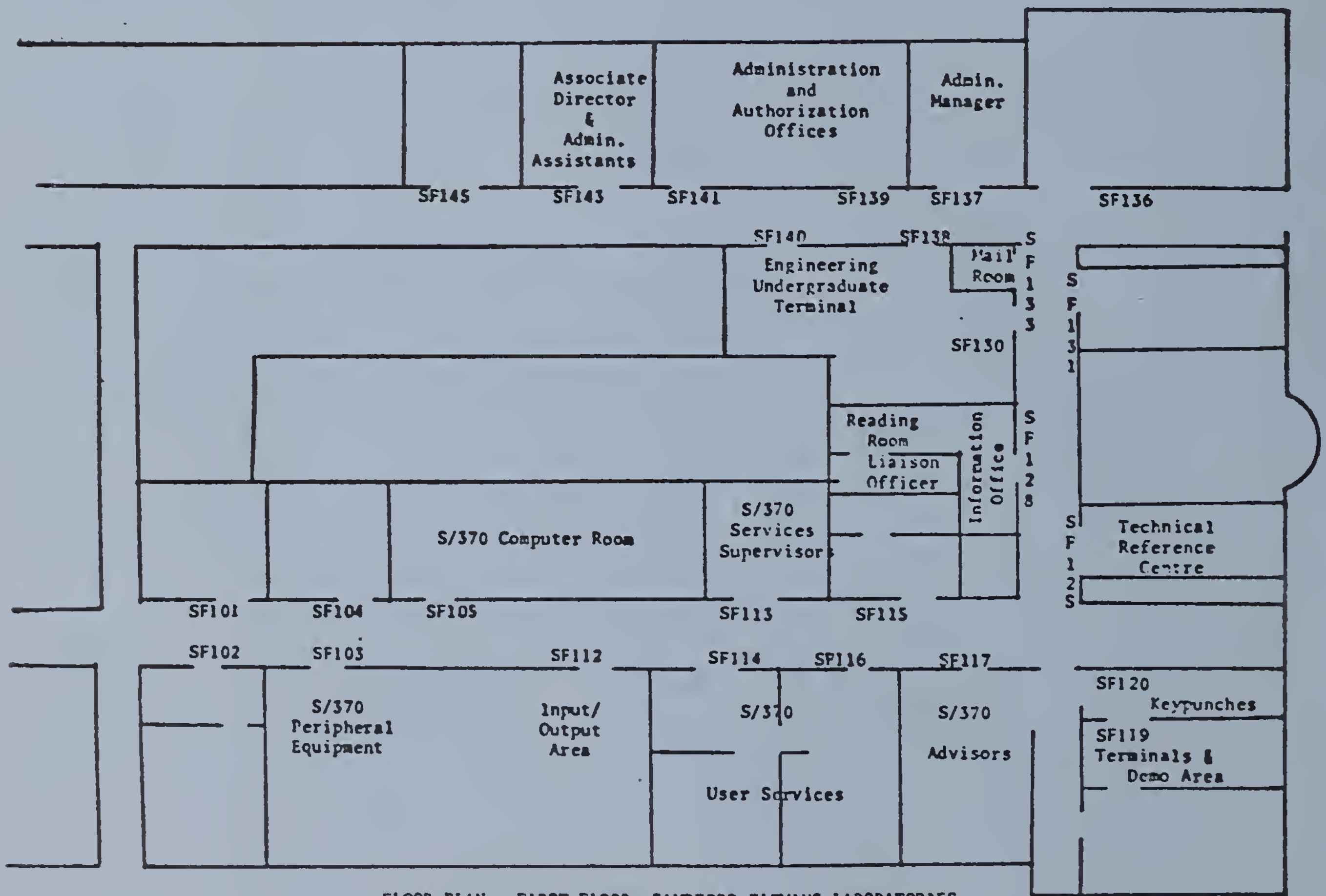
No. 108



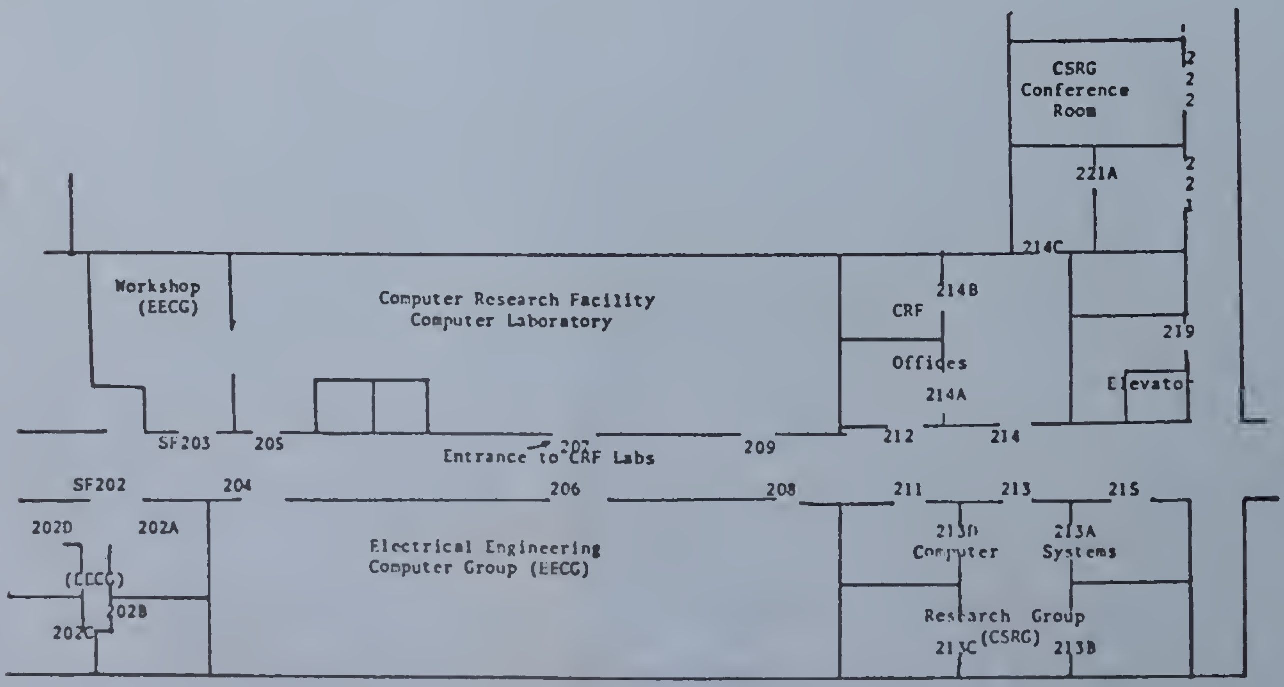


FLOOR PLAN: TWELFTH FLOOR, BURTON TOWER

UNIVERSITY OF TORONTO COMPUTER CENTRE



FLOOR PLAN: FIRST FLOOR, SANDFORD FLEMING LABORATORIES



FLOOR PLAN: SECOND FLOOR, SANDFORD FLEMING LABORATORIES

PERSONNEL CHANGES

It is with regret we say goodbye to Pam Kellett, Jeremy Skinner, Vaclav Pokorny, Carman Lawrick, Beth Dunstall and Karen Roth. Ryerson-York Joint Computer Centre has gained Pam's capable skills. Jeremy is joining IBM in their customer engineering department. Vaclav is going to the west coast and Karen is leaving Toronto. We wish good luck and success to all.

Joining us are John Phillips, Eugene Siciunas, Kin Fong, Anita Chowzun, Wendy Yip, Adam Love and Gilles Chalifour. John has joined us from the Department of Physics and is special adviser on computing planning for the Centre. Eugene has joined System/370 as supervisor of hardware, Kin as a programmer, Anita, Adam and Gilles as computer operators. Gilles was recently on part time staff as a computer operator. Wendy is a new keypunch operator in System/370. Welcome to all and we hope you will enjoy working with us.

Please note: new "columnist"! Accepting responsibility for the future appearance of this section in COMPUTERNEWS, I have also taken on all other aspects of Pam Kellett's role in Administration, but am not so new to the Centre, having been with CRF since 1971.

Trudy Holland

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S/370 RELIABILITY

The uptime percentage for December 1973 was 98.6 and the number of unscheduled IPL's per day was 0.62. Both figures indicate a moderate improvement from November's statistics. The scheduled hours of production for December totalled 425.

For the year of 1973, the average percentage of system uptime was 96.9, and the average number of IPL's per day was 1.33. Discounting the figures for the month of September, which account for the transition period for the installation of the third megabyte of ITEL memory, the average uptime percentage would be 97.8, and the average number of IPL's per day would be 1.12.

	% Uptime	Unsched IPL's/day
Jan 73	96.8	0.87
Feb 73	98.3	1.18
Mar 73	97.8	1.16
Apr 73	97.1	1.39
May 73	98.5	1.20
Jun 73	98.5	1.70
Jul 73	99.4	0.37
Aug 73	97.6	1.13
Sep 73	86.8	3.63
Oct 73	95.6	1.83
Nov 73	98.1	0.93
Dec 73	98.6	0.62
	* 96.9	* 1.33
	**97.8	**1.12

* Indicates the actual average for 1973.
**Indicates average for 1973 excluding September.

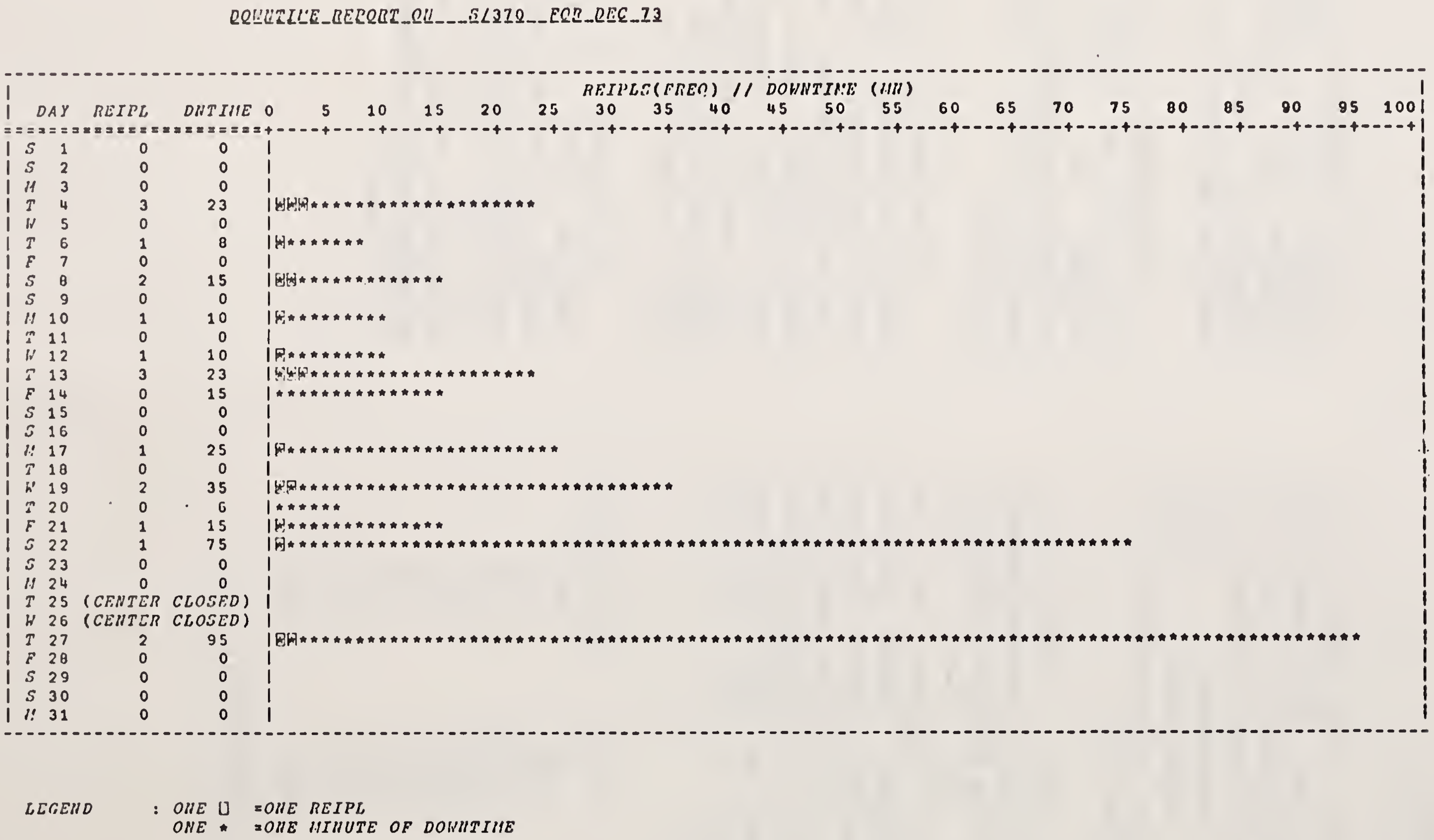
The breakdown of unscheduled downtime for December was: Software 33%, Hardware 29%, and Operational 38%. The total downtime in minutes was 355.

On December 19, 35 minutes were lost when an outside contractor working in the M.G. room accidentally powered off the motor generator which provides power to the S/370.

On December 22, 75 minutes were lost on a system power down when the temperature level in the cooling distributor unit exceeded the acceptable level. The cause of these high temperatures was attributed to irregularities in the pumps and chillers of the external glycol coolant system.

On December 27, 80 minutes of downtime were attributed to a hardware problem when IBM required unscheduled maintenance to replug two 3330 spindles which were plugged incorrectly when these two spindles were switched from Channel 3 to Channel 4.

Dave Rauch



```
DOWNTIME_REPORT_ON___S/370__FOR_DEC_73

-----------------------------------------------------------------------------------------------------------------------------
|                                                    REIPLS(FREQ) // DOWNTIME (MN)                                          |
|  DAY  REIPL   DNTIME 0    5    10   15   20   25   30   35   40   45   50   55   60   65   70   75   80   85   90   95   100|
=======================+----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+|
| S  1      0       0  |                                                                                                    |
| S  2      0       0  |                                                                                                    |
| M  3      0       0  |                                                                                                    |
| T  4      3      23  |□□□********************                                                                             |
| W  5      0       0  |                                                                                                    |
| T  6      1       8  |□*******                                                                                            |
| F  7      0       0  |                                                                                                    |
| S  8      2      15  |□□*************                                                                                     |
| S  9      0       0  |                                                                                                    |
| M 10      1      10  |□*********                                                                                          |
| T 11      0       0  |                                                                                                    |
| W 12      1      10  |□*********                                                                                          |
| T 13      3      23  |□□□********************                                                                             |
| F 14      0      15  |***************                                                                                     |
| S 15      0       0  |                                                                                                    |
| S 16      0       0  |                                                                                                    |
| M 17      1      25  |□************************                                                                           |
| T 18      0       0  |                                                                                                    |
| W 19      2      35  |□□*********************************                                                                 |
| T 20      0       6  |******                                                                                              |
| F 21      1      15  |□**************                                                                                     |
| S 22      1      75  |□**************************************************************************                         |
| S 23      0       0  |                                                                                                    |
| M 24      0       0  |                                                                                                    |
| T 25 (CENTER CLOSED) |                                                                                                    |
| W 26 (CENTER CLOSED) |                                                                                                    |
| T 27      2      95  |□□*********************************************************************************************     |
| F 28      0       0  |                                                                                                    |
| S 29      0       0  |                                                                                                    |
| S 30      0       0  |                                                                                                    |
| M 31      0       0  |                                                                                                    |
-----------------------------------------------------------------------------------------------------------------------------

LEGEND      : ONE □  =ONE REIPL
              ONE *  =ONE MINUTE OF DOWNTIME
```

```
                     _S/370__DOWNTIMES_DURING_DEC_73

---------------------------------------------------------------------------------------------------------------------------
|                                                  TIME OF DAY (HOURS)                                                    |
|  DAY   RELOADS DNTIME  0   1   2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24|
=========================+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+|
| S  1      0      0     |                                                                                                |
| S  2      0      0     |                                                                                                |
| M  3      0      0     |                                                                                                |
| T  4      3     23     |                 S                                                  H                 S         |
| W  5      0      0     |                                                                                                |
| T  6      1      8     |                                                 H                                              |
| F  7      0      0     |                                                                                                |
| S  8      2     15     |                                                            SS                                  |
| S  9      0      0     |                                                                                                |
| M 10      1     10     |                                                                  S                             |
| T 11      0      0     |                                                                                                |
| W 12      1     10     |                                        S                                                       |
| T 13      3     23     |                                             S S                           H                    |
| F 14      0     15     |                                                 H                                              |
| S 15      0      0     |                                                                                                |
| S 16      0      0     |                                                                                                |
| M 17      1     25     |                                              HH                                                |
| T 18      0      0     |                                                                                                |
| W 19      2     35     |                                                        OO S                                    |
| T 20      0      6     |                                I                                                               |
| F 21      1     15     |                                                                        S                       |
| S 22      1     75     |                                    HHHHH                                                       |
| S 23      0      0     |                                                                                                |
| M 24      0      0     |                                                                                                |
| T 25  (CENTER CLOSED)  |                                                                                                |
| W 26  (CENTER CLOSED)  |                                                                                                |
| T 27      2     95     |                                    HHHHHH                      H                               |
| F 28      0      0     |                                                                                                |
| S 29      0      0     |                                                                                                |
| S 30      0      0     |                                                                                                |
| M 31      0      0     |                                                                                                |
---------------------------------------------------------------------------------------------------------------------------
LEGEND :    H FOR HARDWARE
            S FOR SOFTWARE                  STATISTICS
            O FOR OPERATIONAL
            U FOR UNEXPLAINED
            I FOR LATE IPL

                                        TOTAL SCHEDULED HOURS OF PRODUCTION :   425
                                        TOTAL DOWNTIME (MN)   :  355 , AVG/DAY :  12.24 , AVG/PROD HOUR :   0.40
                                        TOTAL REIPL'S         :   18 , AVG/DAY :   0.62
                                        DOWNTIME RATE IS      :  1.39 PERCENT OF SCHEDULED PRODUCTION HOURS
```

COMPUTER CENTRE MANAGEMENT APPOINTMENTS

In recognition of their continuing contributions and current responsibilities, we are pleased to announce the promotions of Derry Cox, Rein Mikkor and Stan Yagi from Supervisors to Managers at the Computer Centre.

Stan is now Manager System/370 Services; Rein, Manager System/370 Software; and Derry, Manager System/370 Operations.

Stan Yagi joined the Computer Centre in July 1971 as a program adviser with the User Services Group. Prior to joining our organization he worked in various programming capacities with Gulf Oil, the Provincial Government and the consulting firm of A.G.T. Stan graduated in 1967 with an honours B.Sc. in Mathematics from the University of Waterloo and in November of 1971 became a consulting supervisor with our User Services Group. In February 1972 he assumed the responsibility of Supervisor of S/370 Services.

Rein Mikkor graduated with a B.Sc. in Mathematics and Physics from the University of Toronto in 1968. In 1969 he received his M.Sc. in Computer Science from Toronto and joined the Computer Centre in February 1972, having determined to abandon the academic pursuit of a Doctoral program in favour of a supervisory function with the S/370 Assurance Group. From December 1972 to the present time, Rein has assumed the responsibility of Supervisor of the Software Development Group.

Derry Cox graduated from the University of Toronto in 1965 with a B.Sc. in Physics and received an M.Sc. in Physics in 1970. He began his career with the Computer Centre at Erindale College as a Terminal Supervisor in March 1969. Derry transferred from Erindale to the main campus and assumed supervisory responsibility of the I/O section in November 1971. During the period November 1971 to December 1972 he worked as I/O Supervisor and in the User Services Group. In December 1972 Derry became S/370 Operations Supervisor.

We are also pleased to announce the appointment of Eugene Siciunas as Supervisor, S/370 Hardware. Eugene graduated from the University of Toronto in Engineering Science in 1968, received his M.Sc. in Electrical Engineering in 1971 and has been working towards his Doctorate in Electrical Engineering. He replaces Bob Cavanagh who has departed for that large metropolis in the Province of Quebec. Welcome aboard Eugene.

Ian Christie

ATTENTION SPEC AND CLASS=C USERS

Users are reminded that SPEC and the UTCC Job Form will be discontinued on February 5, 1974. UTCC has introduced the /*SETUP Statement to take the place of the SPEC program which writes messages to the operator and, in the case of CLASS=C, the UTCC Job Form which accompanies every run. A handout explaining how to code the /*SETUP Statement is available at the Information Office SF128, the Advising Office SF117 and from the Remote Terminal Co-ordinators.

All SPEC users are encouraged to begin using the /*SETUP Statement as soon as possible.

Victor Peltz

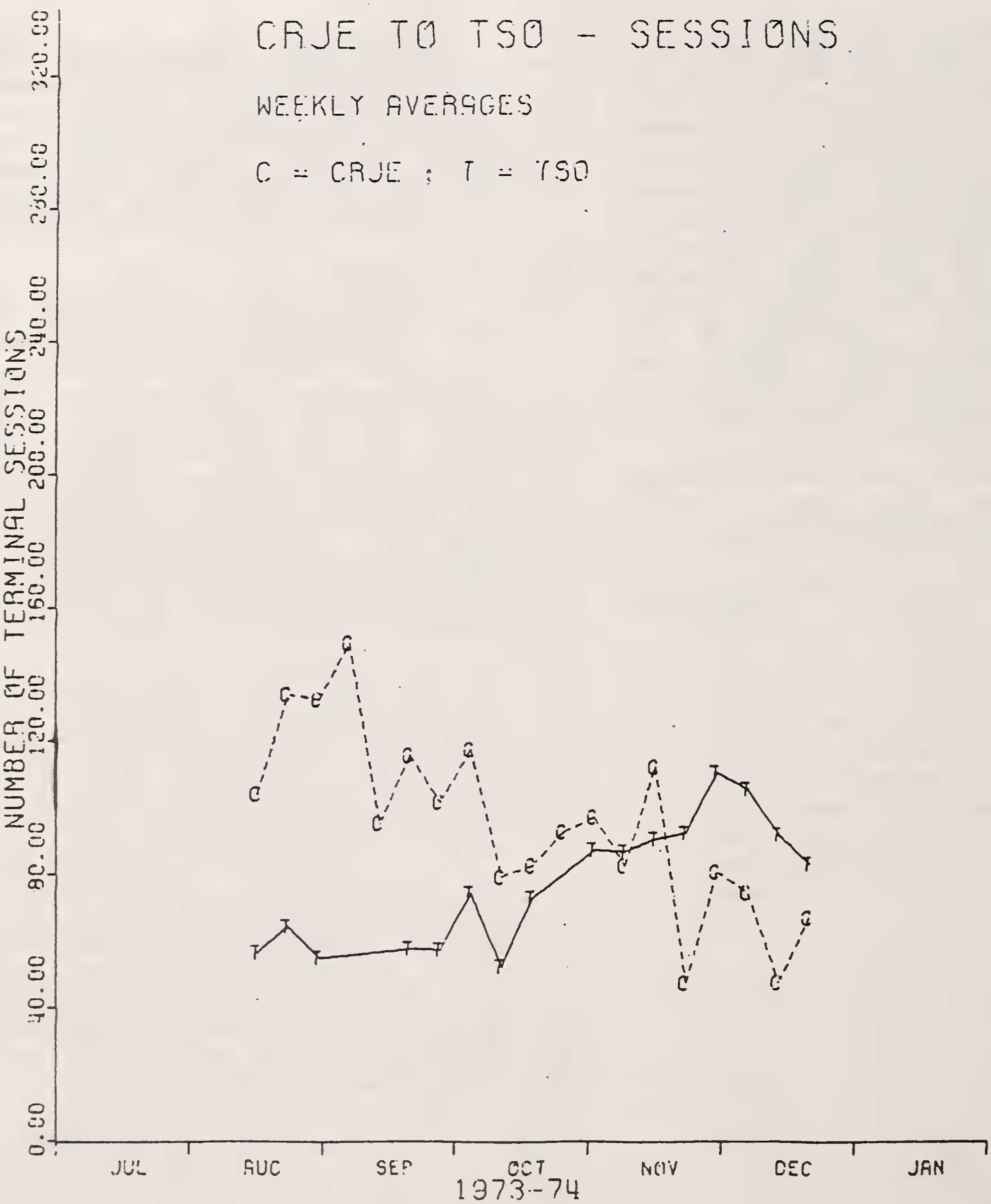
FAREWELL CRJE

CRJE was removed from the system on January 13, 1974. Former CRJE users have converted to ATS/RJE, 'regressed' to cards, or opted for the similar but more powerful TSO (Time Sharing Option) facilities available on the S/370-165.

S/370 Services would like to take this opportunity to thank those CRJE users who, by providing suggestions and criticism based on their own experiences while using CRJE, enabled us to revise and improve the CRJE service provided. We hope this feedback will continue with TSO. Users with suggestions for improvements to TSO are invited to contact Ian Darwin at 928-6355, Sandford Fleming Room SF116.

The following chart shows the average number of sessions per day (averaged weekly) for CRJE(C) and TSO(T) for the period from July 1973 through December 1973. TSO use has increased fairly steadily with a corresponding decrease in the use of CRJE. The deviation from this trend during the latter part of November 1973 through the month of December can be ascribed to users completing term assignments and cleaning up their CRJE datasets in anticipation of the removal of CRJE.

Ian Darwin


CRJE TO TSO - SESSIONS
WEEKLY AVERAGES
C = CRJE ; T = TSO
NUMBER OF TERMINAL SESSIONS
0.00
40.00
80.00
120.00
160.00
200.00
240.00
280.00
320.00
JUL
AUG
SEP
OCT
NOV
DEC
JAN
1973-74

HIGH SPEED JOB STREAM NEWS

Reconfiguration

The Arts and Science Undergraduate Terminal has been reconfigured. The keypunches and line printer were moved to allow a more natural flow of traffic. Hopefully this should reduce the problems of overcrowding and bad traffic flow which were experienced at the terminal last year because of the increased load.

System Status Indicator Lights Installed

Users at the two High Speed Job Stream Terminals can now immediately determine whether the system operator thinks the system is up or down, and they can call for help by pressing a button. A system status indicator box has been installed at each terminal, near the card reader. The box contains two lights and a button. The green light is on when the system operator thinks that the system is up and the red light is on when he thinks it is down. The button can be pressed if a problem arises at the terminal. The system operator will then respond on the intercom. If this arrangement proves to be successful, it may be extended to other terminals.

1973 in Review

High Speed Job Stream usage increased considerably during 1973 with 1,358,758 jobs being processed compared with 1,031,241 during the previous year. This represents an increase of over 31%. The table below summarizes the monthly usage for 1972 and 1973. Usage decreased during the months of January and June.

High Speed Job Stream Usage

	1973	1972	% change
January	93,553	104,748	-10.68%
February	140,664	105,267	33.62%
March	158,437	112,242	41.15%
April	105,439	74,460	41.60%
May	84,105	57,052	47.41%
June	41,298	57,033	-27.58%
July	56,201	44,988	24.92%
August	50,040	39,870	25.50%
September	92,522	75,195	23.04%
October	205,914	134,886	52.65%
November	221,457	147,899	49.73%
December	109,128	77,601	40.62%
Total	1,358,758	1,031,241	31.76%

At the end of June, UTCC began recording the CPU and memory usage for all High Speed Job Stream jobs. During the last six months of 1973, 735,262 jobs were processed. Unit Record usage (cards read and lines printed) was over 204,000,000. CPU usage was over 7,209 minutes while memory usage exceeded 5,000,000 kilobyte minutes. At current GPJS charging rates for priority 6 usage, this represents a value of over $278,000 and an average cost per job of over 37¢.

Monthly Statistics

During December 1973, 109,128 jobs were submitted through the High Speed Job Stream for an increase of over 40%. The table and graph reproduced below are for the period December 1, 1973 to December 31, 1973. The CPU time reported is in hundredths of a minute.

Mark Tapia

```
                          HSJS RESOURCE USAGE BY PROCESSOR FOR   1/12/73 TO 31/12/73

               |  TOTAL   |  TOTAL  |  TOTAL   |  TOTAL   ||  AVG    |  AVG   |  AVG   ||
               |  #JOBS   |  CPU    |  CARDS   |  LINES   ||CPU*10   | CARDS  | LINES  ||
-------------------------------------------------------------------------------------------
WATFIV    -W   |  44709   |  47985  | 6443944  | 7470102  ||   10    |  144   |  167   ||
SPITBOL   -T   |   1305   |   1259  |  188974  |  282475  ||    9    |  144   |  216   ||
PL/C      -C   |  53879   |  56674  | 5310190  |12018815  ||   10    |   98   |  223   ||
UTILITY   -U   |   2719   |    615  |  581380  |  655616  ||    2    |  213   |  241   ||
ALGOLW    -G   |   1110   |   1573  |  396135  |  395985  ||   14    |  356   |  356   ||
PLUTO     -P   |   1378   |   1938  |  116503  |  187681  ||   14    |   84   |  136   ||
ASMG      -A   |   1381   |   2937  |  312411  |  546631  ||   20    |  226   |  395   ||
WATBOL    -B   |    876   |   1789  |  208510  |  246750  ||   20    |  238   |  281   ||
SIMON     -S   |   1734   |    274  |   96483  |  133886  ||    1    |   55   |   77   ||
ASSIST    -I   |      0   |      0  |       0  |       0  ||    0    |    0   |    0   ||
LISP      -L   |     37   |     15  |    5767  |    8817  ||    4    |  155   |  238   ||
OTHER     -?   |      0   |      0  |       0  |       0  ||    0    |    0   |    0   ||
OTHER     -?   |      0   |      0  |       0  |       0  ||    0    |    0   |    0   ||
-------------------------------------------------------------------------------------------
          TOTAL 109128      114960   13660187   21946758       10        125      201
```

```
ALL                      HSJS SUMMARY FOR  1/12/73 TO 31/12/73

PROCESSOR       #JOBS  % TOTAL |  #JOBS  TIME+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
WATFIV    -W    44709   (40%)  |    832     0|WWCCCCC
SPITBOL   -T     1305   ( 1%)  |    978      |WWWCCCCC
PL/C      -C    53879   (49%)  |    843     1|WWCCCCC
UTILITY   -U     2719   ( 2%)  |    773      |WWCCCC
ALGOLW    -G     1110   ( 1%)  |    685     2|WWCCCC
PLUTO     -P     1378   ( 1%)  |    598      |WCCCC
ASMG      -A     1381   ( 1%)  |    488     3|WCCC
WATBOL    -B      876   ( 0%)  |    363      |WCC
SIMON     -S     1734   ( 1%)  |    577     4|WCCCC
ASSIST    -I        0   ( 0%)  |    257      |WCC
LISP      -L       37   ( 0%)  |    234     5|WC
OTHER     -?        0   ( 0%)  |    155      |C
OTHER     -?        0   ( 0%)  |     40     6|
                               |     20      |
                               |      0     7|
                               |     16      |
                               |    643     8|WWCCC
                               |   1225      |WWWWCCCCCCU
                               |   1747     9|WWWWWWCCCCCCCCCCU
                               |   2431      |WWWWWWWWCCCCCCCCCCCCCU
                               |   3036    10|WWWWWWWWWWWWWWCCCCCCCCCCCCCUU
                               |   3584      |WWWWWWWWWWWWWWWCCCCCCCCCCCCCCCCCUS
                               |   4033    11|WWWWWWWWWWWWWWWWWCCCCCCCCCCCCCCCCCCCCUGS
                               |   4335      |WWWWWWWWWWWWWWWWWWCCCCCCCCCCCCCCCCCCCCCUGS
                               |   4171    12|WWWWWWWWWWWWWWWWWWTCCCCCCCCCCCCCCCCCCCCUPAS
                               |   4521      |WWWWWWWWWWWWWWWWWWCCCCCCCCCCCCCCCCCCCCCCCCUS
SHIFT    # JOBS  % TOTAL       |   4776    13|WWWWWWWWWWWWWWWWWWWWCCCCCCCCCCCCCCCCCCCCCCCCUAS
0 - 8     6859     ( 6)        |   4969      |WWWWWWWWWWWWWWWWWWWWCCCCCCCCCCCCCCCCCCCCCCCCCCUGAS
8 - 4    60399     (55)        |   5230    14|WWWWWWWWWWWWWWWWWWWWWWTCCCCCCCCCCCCCCCCCCCCCCCCCCUPS
4 - 12   41870     (38)        |   5321      |WWWWWWWWWWWWWWWWWWWWWWWTCCCCCCCCCCCCCCCCCCCCCCCCCCUPAS
                               |   4982    15|WWWWWWWWWWWWWWWWWWWWWWTCCCCCCCCCCCCCCCCCCCCCCCCUPAS
  78738 JOBS (72%) WERE RUN    |   5395      |WWWWWWWWWWWWWWWWWWWWWWWWTCCCCCCCCCCCCCCCCCCCCCCCCCCUPAS
    FROM 10 AM TO 7 PM         |   5270    16|WWWWWWWWWWWWWWWWWWWWWWWWTCCCCCCCCCCCCCCCCCCCCCCCCCUPAS
                               |   5260      |WWWWWWWWWWWWWWWWWWWWWWWWTCCCCCCCCCCCCCCCCCCCCCCCCCUGPS
                               |   3852    17|WWWWWWWWWWWWWWWWWCCCCCCCCCCCCCCCCCCU
                               |   3693      |WWWWWWWWWWWWWWWWCCCCCCCCCCCCCCCCCCUGP
                               |   3250    18|WWWWWWWWWWWWWWWWCCCCCCCCCCCCCCU
                               |   3060      |WWWWWWWWWWWWWWWCCCCCCCCCCCCCUS
                               |   3056    19|WWWWWWWWWWWWWWCCCCCCCCCCCCCCU
                               |   3079      |WWWWWWWWWWWWWCCCCCCCCCCCCCCU
                               |   3171    20|WWWWWWWWWWWWWWCCCCCCCCCCCCCCCU
                               |   3202      |WWWWWWWWWWWWWWWCCCCCCCCCCCCCCUP
                               |   2604    21|WWWWWWWWWWWWCCCCCCCCCCCCU
                               |   2165      |WWWWWWWWWWCCCCCCCCCC
                               |    111    22|W
                               |     47      |
                               |     13    23|
                               |     36      |
                                            +-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
                         TOTAL 109128       0          1070        2140        3210        4280        5350        6420        7490
```

USER FORUM

On Thursday, December 13, UTCC sponsored a User Forum for TSO and CRJE users. The meeting was divided into an information period and a discussion and question period. UTCC and its users were fortunate to have Mr. Bob Robello from the Massachusettes Institute of Technology in attendance. M.I.T. was one of the first installations to implement TSO, and Mr. Robello's experiences have been of great value to UTCC's planning for TSO.

The information portion of the Forum outlined planned changes, known problems, and future enhancements to the TSO system at the University of Toronto. Four immediate changes are summarized below:

1. Some of the commands (e.g. SUBMIT and dataset registration commands) are being made more efficient by changing them from CLIST's to command processors.
2. LOGON charges are being reduced and may be removed.
3. Charges for connect time are being implemented.
4. A new means of memory charging is being implemented. At present, the memory usage charge is determined by the region requested at the start of the session. Under the new system, a memory sampling technique will be used. Samples taken throughout the session will form the basis of charging. This change is expected to significantly reduce memory charges.

Problems discussed during the second half of the Forum included the C03 ABEND which occurs when there is not enough space on a pack to save a dataset; a region size problem which occurred when IEBCOPY was used (now fixed); and slow LOGON time. The last problem has been corrected by increasing the efficiency of OS Job initiation and termination.

Future enhancements to the TSO system may include SPITBOL, FORTRAN H, Interactive WATFIV Debug, Assembler prompters and SPEAKEASY, an interactive mathematics-oriented language.

The discussion and question period gave rise to questions about memory sampling, operational procedures for TSO, enqueue problems, TSO security, and the removal date of CRJE. In response to the last item UTCC extended CRJE service to January 13.

User Forums provide a means for users to interact with their Computer Centre. Although there was good turnout for this User Forum, the Centre hopes that more members of the computing community will be able to attend similar events in the future.

Don Gibson

COMPUTER CENTRE SHORT COURSES

UTCC is again presenting a series of short, non-credit courses. The format of the courses is being changed from what it has been. Most of the courses are designed to be instruction--problem sessions. The assignments given out in the courses will form a basis for much of the classroom discussion. For the first time, courses are being given at locations other than the central site, and another first includes an evening class.

A schedule and description of courses being offered follows. If you wish to attend any of the sessions please use the registration sheet which follows the schedule. It is pre-addressed and there is no need for a stamp if the Campus Mail is used. There is no charge for the courses.

Important: Fill out the registration form completely as it will be used for mailing a confirmation of registration to you. Room numbers for the courses will be sent along with your confirmation.

Don Gibson

Introduction to Programming

Prerequisite: None
Dates: February 11, 12 and 14
Time: 7 - 8:30 p.m.
Maximum # of Registrants: 30
Location: Sandford Fleming Building
Instructor: K. Fysh

The course is for people who have had little if any contact with computer programming. It is recommended as a prerequisite for any non-programmer intending to take an introductory course in any language during this schedule or at a later date. The course will explain the basics of:

> bits, bytes, hexadecimal arithmatic, and storage concepts; machine language and the role of processors/compilers; and program design techniques.

The student will have the opportunity to demonstrate and apply the concepts learned by preparing and executing a simple program to meet specifications set by the instructor and through a short quiz.

Introduction to Languages

The introductory languages offered are intended to act as starters. Each course will instruct the student in the basic statements and operations of the language. Approximately half of the class time will be devoted to the introduction of new material while the remaining time will be given to applying the information presented and discussing problems which the student may encounter. Programming assignments will be given; all computing for each course may be done on the High Speed Job Stream. The student will be able to evaluate his progress by preparing and running a final assignment.

Introduction to PL/C

Prerequisite: Introduction to Programming or experience in another programming language.
Dates: February 25 and 27, March 1, 6 and 8
Time: 2 - 3 p.m.
Maximum # of Registrants: 30
Location: Scarborough College
Instructor: R. Lombardi

PL/C is a subset of the PL/I language. PL/I is a versatile language which conveniently processes both numeric and alpha input.

Introduction to WATFIV

Prerequisite: Introduction to Programming or experience in another programming language.
Dates: February 25 and 27, March 1, 5 and 7
Time: 4 - 5 p.m.
Maximum # of Registrants: 30
Location: Erindale College
Instructor: V. Lawrason

WATFIV is a compiler for the FORTRAN language. FORTRAN is a language oriented towards efficient number processing or "scientific" computing.

Introduction to SPITBOL

Prerequisite: Knowledge of another language; SPITBOL is not recommended as a first language.
Dates: February 25 and 27, March 1, 5 and 7
Times: 4 - 5 p.m.
Maximum # of Registrants: 30
Location: Galbraith Building
Instructor: D. Hatch

SPITBOL is a language designed to facilitate character and text manipulation (e.g. text editing).

Introduction to Dataset Organization

Prerequisite: Knowledge of and ability to use a programming language and elementary knowledge of JCL.
Dates: February 11, 12, 13, 14 and 15
Time: 4 - 5 p.m.
Location: Galbraith Building
Maximum # of Registrants: 30
Instructor: D. Rauch

This course will provide an introduction to the following items:

Dataset organization and access methods;
Dataset registration at UTCC;
Dataset labels and the use of labels.

The student will be expected to practice using the information presented by creating, reading, and manipulating datasets. A significant part of the lecture will be dedicated to a discussion of the assigned problems. Access to the GPJS will be provided through the course.

Introduction to Job Control Language (JCL)

Prerequisite: Knowledge of and ability to use a programming language.
Dates: March 4, 6, 8, 12 and 14
Time: 4 - 5 p.m.
Location: Galbraith Building
Maximum # of Registrants: 30
Instructor: T. Shafran

Job Control Language is the programmer's means of giving instructions and information to the Operating System. Through JCL, requests are made (e.g. for memory allocation), information given to the system (e.g. accounting and class information), and datasets are manipulated. This course intends to present the basic statements of JCL and explain their uses. The student will be expected to test his knowledge by using JCL to access and manipulate datasets placed on the system by the instructor. Use of the GPJS will be provided through the course.

Introduction to the Linkage Editor

Prerequisite: 1. Knowledge of and ability to use a programming language and JCL.
2. The student should have a program consisting of several subroutines to be overlayed and linkedited during the course.
Dates: February 18, 20, 22, 25 and 27
Time: 3 - 4 p.m.
Maximum # of Registrants: 30
Location: Sandford Fleming Building
Instructor: H. Kugel

The Linkage Editor is the most heavily used facility under the Operating System. All output from any compiler that is to result in a saved program must go through the Linkage Editor. Sophisticated use of the Linkage Editor can result in greater technical competence, which leads to greater efficiency and financial savings. The course will cover:

use of the Linkage Editor and Linkage Editor parameters;

introduction to optimization and overlay.

The student will be able to apply the information received by using the Linkage Editor to tune the program mentioned in Prerequisite 2. Access to the GPJS will be made available through the course.

Introduction to Time Sharing Option (TSO)

Prerequisite:	The student should know a programming language. The course will be of most value to those with a FORTRAN, PL/I or similar background.
Dates:	February 18, 20, 22, 25 and 27
Time:	4 - 5 p.m.
Location:	Galbraith Building
Maximum # of Registrants:	100
Instructor:	J. Wettlaufer I. Darwin

Time Sharing Option allows the user who was previously committed to a batch system to program in an interactive mode. TSO permits foreground execution and debugging of jobs, editing features, and remote job entry. This course is intended to serve as an introduction to the capabilities and powers of TSO. This course will also act as a starting point for more advanced educational sessions which will be established during the course. Television monitors will be used for part of the course to allow the student to follow TSO demonstrations given by the instructor.

INTERACTIVE SYSTEMS RELIABILIY

The uptimes achieved for the month of December for each of APL, ATS, and CPS were 99.95%, 99.93% and 99.93% respectively. The total number of scheduled hours of operation during the month of December was 388.5. In addition to the scheduled time, APL, ATS and CPS were also available for approximately 258 hours of unattended weekend operation including Christmas holidays.

On Thursday, December 27, the fan in LCS failed during unattended operation and caused overheating of two SMS cards. The table below shows the time lost due to System failures for each of the systems: two unscheduled IPL's were required as a result of the failures.

Kam Jain

DATE	DOWNTIME (mins)			REASON
	APL	ATS	CPS	
Fri. Dec. 14	11	14	16	*Solid System (Test I/O waiting channel end seek)
Thu. Dec. 27	343	422	426	*LCS fan failure
Total	354	436	442	*IPL Required

System Failures December 1 to December 31, 1973

APL SENSES CENSUS DATA

The recent acquisition, from Statistics Canada, of the short form 1971 census summary tapes by UTCC prompted an investigation of the practicality of manipulating census data with an interactive system such as APL. For the purpose of this experiment, at the suggestion of the Geography Department, an area aggregate tape was selected which contained demographic, housing, family, and household information for each of 5000 specific areas in Canada. The information for the Toronto Census Region, an area slightly larger than that of Metropolitan Toronto, was extracted from the census tape and used to create five APL files. These files can be viewed as APL matrices in which the rows represent area aggregates (census tracts) and the columns represent variables such as age, sex, mother tongue, etc.

Simple functions were written in APL to manipulate these files and produce plots on a typewriter or graphic display terminal. It was found that it was possible to sum all of the columns in a matrix, e.g. the number of females and males in 101 age groups, and plot these age distributions on the graphic terminal in less than a minute. Similar tabulations involving several tables took only slightly longer.

Our experience with this subset of the census data leads us to conclude that it is both practical and economical to have census information available under APL for both teaching and research. Storage costs for a data base of this size approximate thirty dollars a month at current track rates. With the release, in the near future, of the long census form summary tapes, this approach should prove even more attractive.

We plan to retain the existing data files and we invite any interested users to contact the Interactive Systems Group for further information and/or a demonstration of the system.

Al Heyworth
Jerry Novak

3705 INSTALLATION

A 3705 Communications Control Unit is scheduled to be installed in early February. The control unit will allow us to provide additional ports for ATS and additional ASCII ports for APL to meet current and anticipated demands. The installation will also afford us an opportunity to experiment with the 3705 in order to evaluate its potential as a suitable front end communications controller for our future requirements.

Sam Goldfarb

UTCC DIRECTORY

	ROOM	PHONE 928-
DIRECTOR		
John C. Wilson	49 St.Geo	6496
ASSOCIATE DIRECTOR		
Al Heyworth	49 St.Geo	4936
ASSOCIATE DIRECTOR		
Dave McNaughton	SF143	6281
USER LIAISON OFFICER		
Bill Greene	SF128A	2694
Information Office	SF128	4990 or 4991
ADMINISTRATION MANAGER		
Jerry Palter	SF137	8948
AUTHORIZATION CLERKS		
Nancy Pocock (S/370 + 7094)	SF139	8702
Ann DeFazio (S/370 + 7094)	SF139	8702
Yvonne Bowen (Interactive)	49 St.Geo	8703
Maggie Neimi (TSO)	SF143	5557
S/370 SERVICES		
MANAGER, S/370 SERVICES		
Stan Yagi	SF113	7331
MANAGER, S/370 OPERATIONS		
Derry Cox	SF113	7092
MANAGER, S/370 SOFTWARE		
Rein Mikkor	SF113	5058
SYSTEM HARDWARE SUPERVISOR		
Eugene Siciunas	SF114	4967
PROGRAM ADVISERS	SF117	8599
INTERACTIVE TERMINAL SYSTEMS		
MANAGER		
Sam Goldfarb	49 St.Geo	3787
7094 SERVICES		
MANAGER		
Joyce Walton	BT1207	7094
COMPUTER RESEARCH FACILITY		
ASSISTANT MANAGER		
Dennis Smith	SF214	4086

JOB STATUS QUERIES:

SYSTEM/370	7373
7094	7094

INTERACTIVE TERMINAL SYSTEMS:

System Status	6234
APL	7200
ATS	7100
CPS	6200

CONVERSATIONAL REMOTE JOB ENTRY (CRJE):

2741	7223/7381/7386
TTY	7445

TSO:

2741 Terminal Malfunctions	7107
2741	7303
TTY	7390

UTCC COMPUTER EQUIPMENT

SYSTEM/370 MODEL 165

- located in SF103/105/112
- provides General Purpose Job Stream, High Speed Job Stream, TSO and Conversational Remote Job Entry services
- 3072K bytes of memory
- 1 drum
- 10 disk drives IBM (3330)
- 8 disk drives IBM (2314)
- 6 magnetic tape drives (4 9-track and 2 7-track)
- 6 display consoles
- 6 printers
- 5 card readers
- 1 card punch
- 7 remote batch terminals
- 1 paper tape reader
- CALCOMP plotter (11" and 30")
- Gould plotter (11")
- OS/MVT with HASP

SYSTEM/360 MODEL 65

- located in McLennan Physical Laboratories
- provides Interactive Systems Service
- 1536K bytes of core
- 16 disk drives (2314)
- 2 9-track magnetic tape drives
- 1 printer
- 1 card reader
- 1 card punch
- 140 typewriter terminals
- OS/MVT with APL, ATS, and CPS

7094 II

- located in Room 1203 Burton Tower
- 32K words of core
- 1 disk
- 8 magnetic tape drives
- input/output via a 1401 computer

IBM/360 MODEL 44

- located in SF207
- 256K core
- 10 disk drives (8 2314's and 2 2311's)
- 2 2401 tape drives
- 2 1403 printers
- 2 2501 card readers
- 2701 data adapter
- 2250 video display unit
- RADDTS
- Calcomp microfilm plotter
- minicomputers
- VWol Digitizing Tablet
- DEC GT40

CAMPUS MAIL

Education Schedule
Computer Centre
Room 125
Sandford Fleming Building
University of Toronto
TORONTO, Ontario M5S 1A1

fold here

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Registration for Computer Centre
Non-credit Short Courses

Name ____
(last) (first)

Mailing Address ** including city or borough **

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Phone: ____________________

Please enroll me in: (circle number)

1. Introduction to Programming
2. Introduction to PL/C
3. Introduction to WATFIV
4. Introduction to SPITBOL
5. Introduction to Dataset Organization
6. Introduction to JCL
7. Introduction to the Linkage Editor
8. Introduction to TSO

Confirmation of course(s) will be sent to the above address along with the room number in which the course will meet.